

An article resulting from a project funded in the GCDAMP biennial workplan authored by Kimberly Dibble, Charles Yackulic, Theodore Kennedy, and Phaedra Budy has been accepted for publication in *Ecological Applications*. The article synthesizes biological and hydrologic data from tailwaters across the western United States, with the aim of understanding how flow management and other biological factors influence rainbow and brown trout population dynamics in regulated rivers.

In summary, the authors used data from 29 dams to evaluate how flow, fish density, and other physical factors influence recruitment and mean adult length of rainbow and brown trout in tailwaters across western North America. Results indicate that rainbow and brown trout recruitment is primarily explained by dam operations that regulate flow, whereas mean adult length is best explained by biological predictors such as high fish density and new adult cohort strength, followed by flow management. In particular, rainbow trout recruitment increased in years exhibiting high winter flow combined with low spring flow (i.e., in the season following emergence), whereas brown trout recruitment increased in tailwaters exhibiting low water velocity. Adult rainbow trout length decreased in tailwaters exhibiting high rainbow trout density, whereas adult brown trout length decreased when large cohorts of brown trout recruited into the adult size class. Since recruitment regulates the density of trout populations, and flow alters recruitment, flow indirectly plays a role in determining adult size. Therefore, it is important to consider the effects of flow management on recruitment because the latter ultimately drives patterns in the overall health of tailwater trout populations.

The preprint of this article has been attached to this email. For questions, please contact Kimberly Dibble (kdibble@usgs.gov; 928-556-7327).